

10/9 2-6 Special Functions

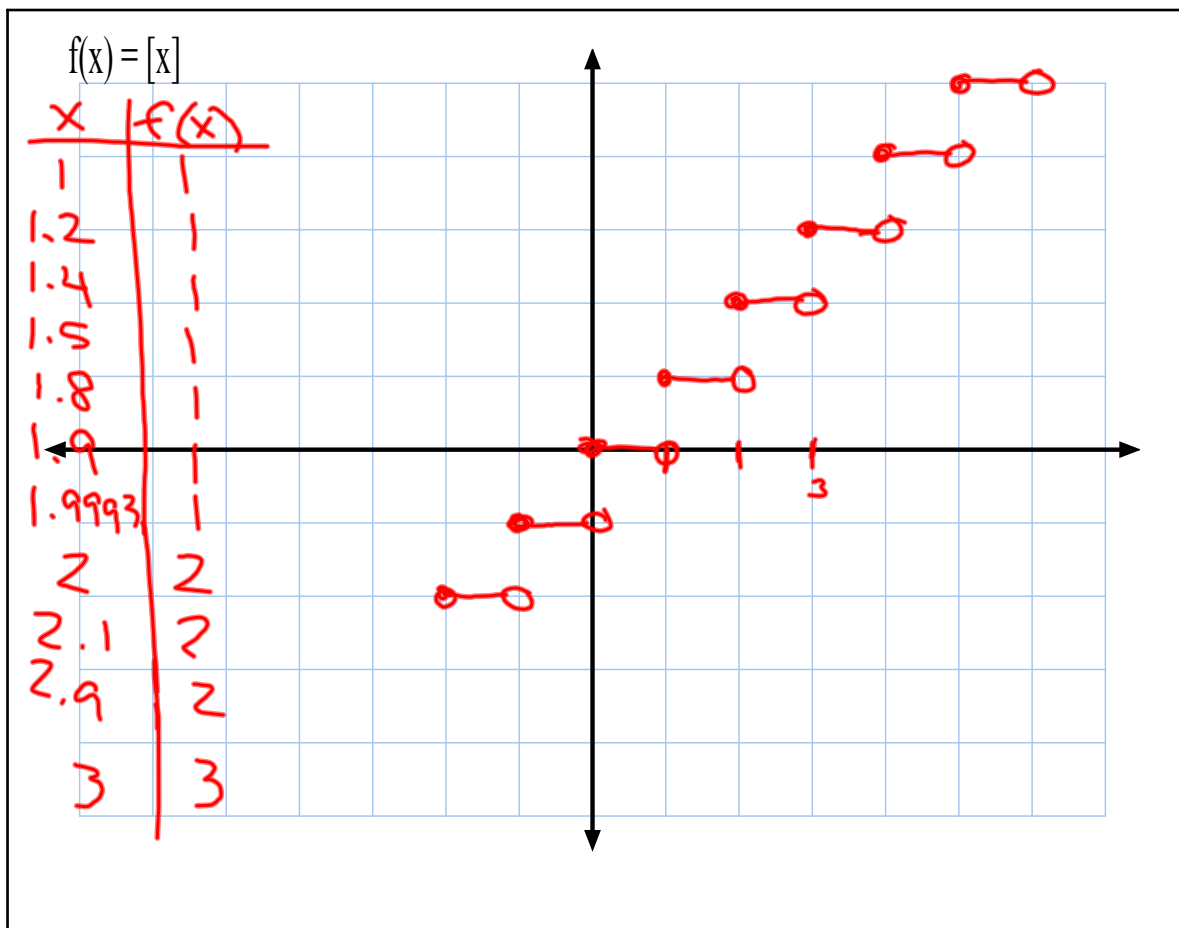
Step function

$$f(x) = [x]$$

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The greatest integer function--the greatest integer less than or equal to x.

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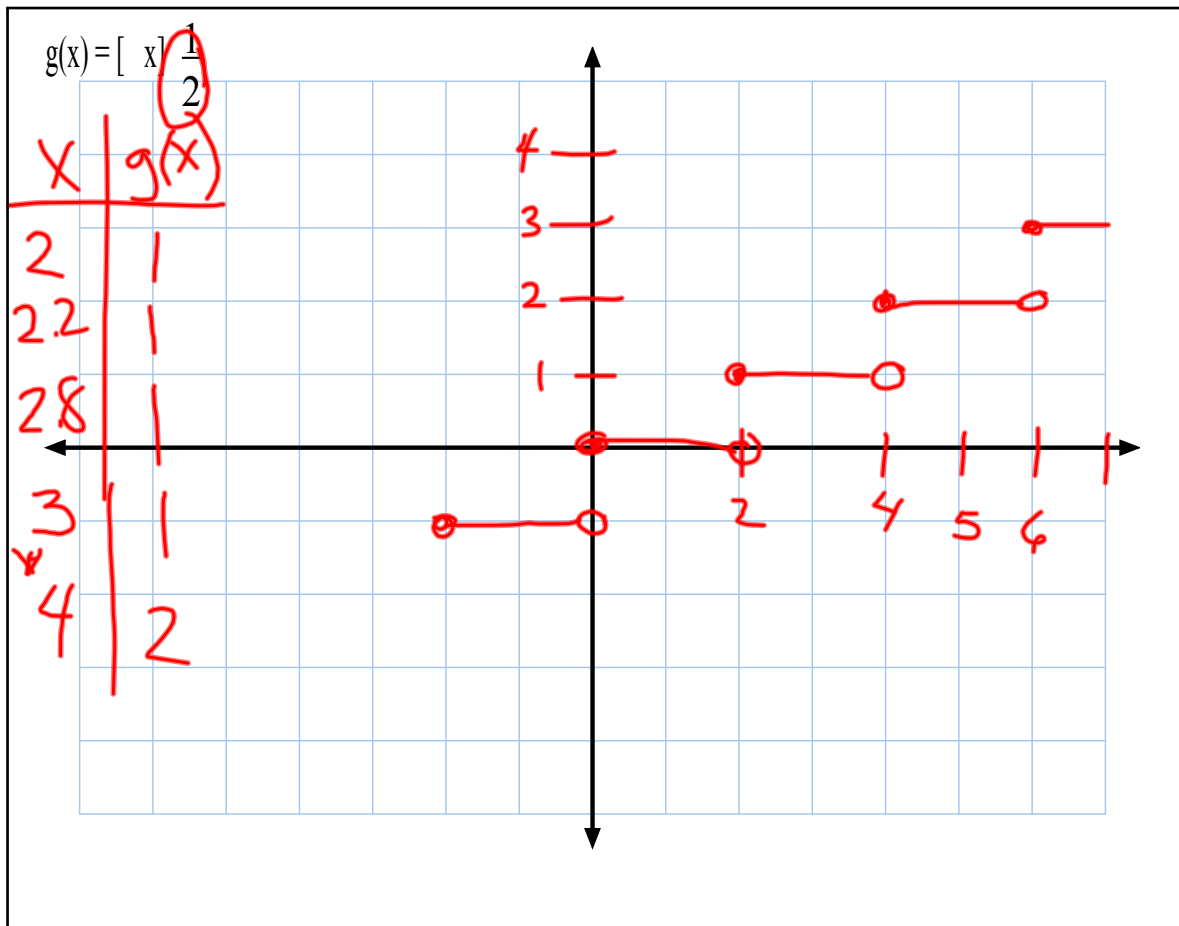
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$$\lceil +3.4 \rceil + 2 = 5$$

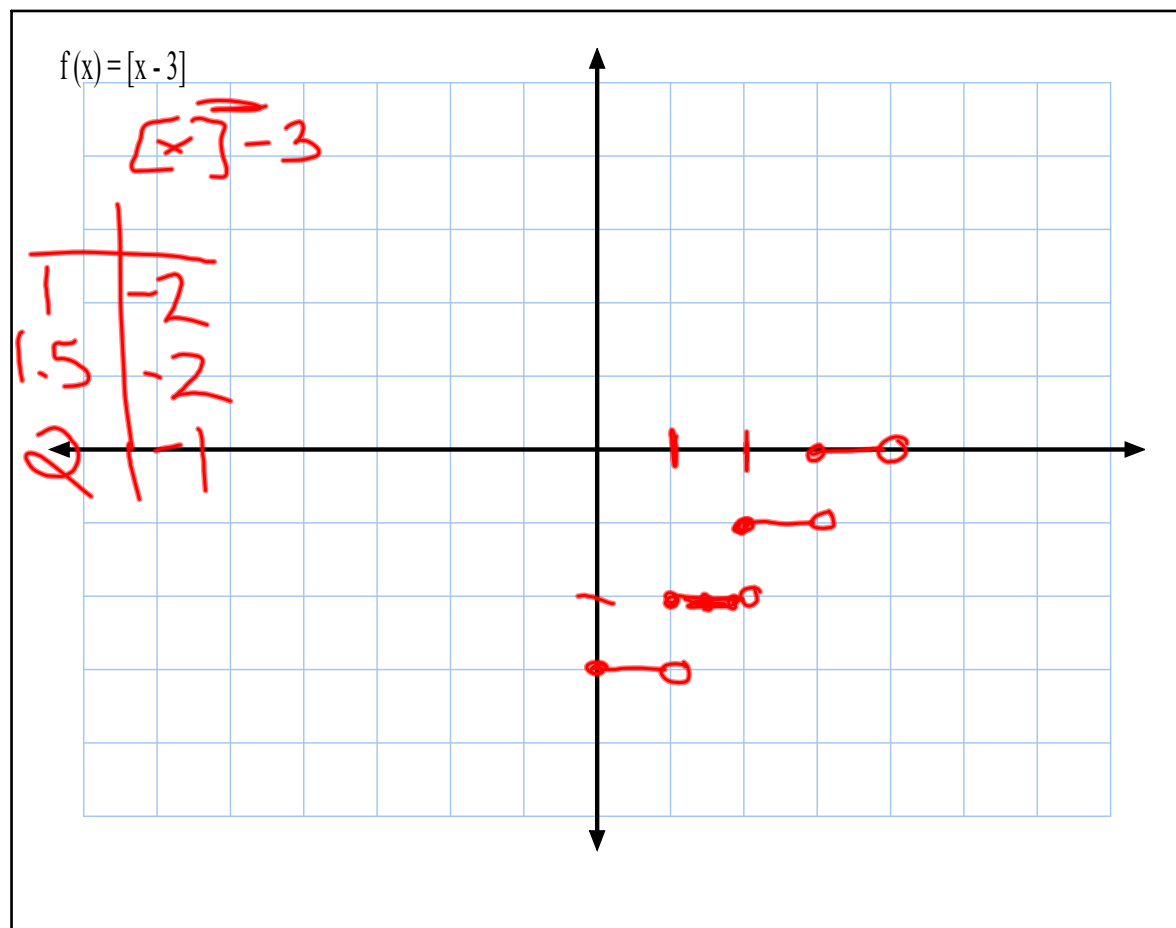
$$f(x) = \lfloor x \rfloor$$

$$\lfloor -3.4 \rfloor = -4$$

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$$f(x) = \begin{cases} -3 & \text{if } 0 \leq x < 1 \\ -2 & \text{if } 1 \leq x < 2 \\ -1 & \text{if } 2 \leq x < 3 \end{cases}$$

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Piecewise Functions--a function that is written using two or more expressions

Def. Of absolute value:

$$f(x) = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

$$f(x) = x$$

$$y = x$$

$$0 \mid 0$$

$$1 \mid 1$$

$$2 \mid 2$$

$$3 \mid 3$$

Domain:

Range:

$$f(x) \geq 0$$

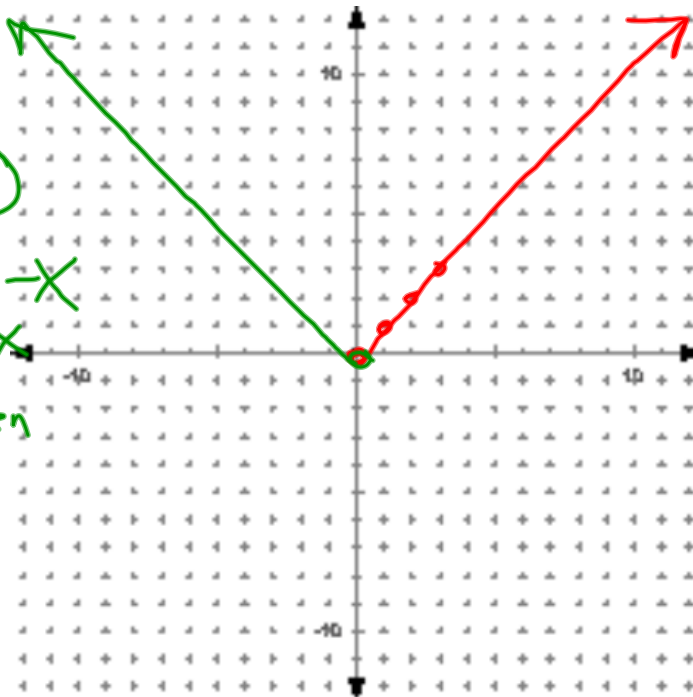
$$f(x) = -x$$

$$y = -x$$

$$0 \mid 0$$

$$-1 \mid 1$$

$$-2 \mid 2$$



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$$f(x) = \begin{cases} x & \text{if } x \geq 3 \\ 3 & \text{if } 0 < x < 3 \\ x+3 & \text{if } x \leq 0 \end{cases}$$

$$y = x$$

$$3 \mid 3$$

$$0 \mid 3$$

$$3 \mid 3$$

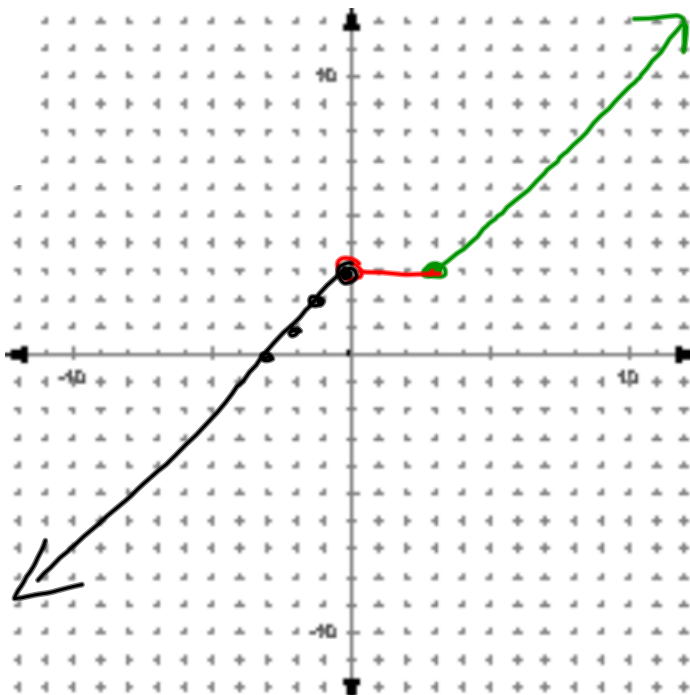
$$y = x+3$$

Domain:

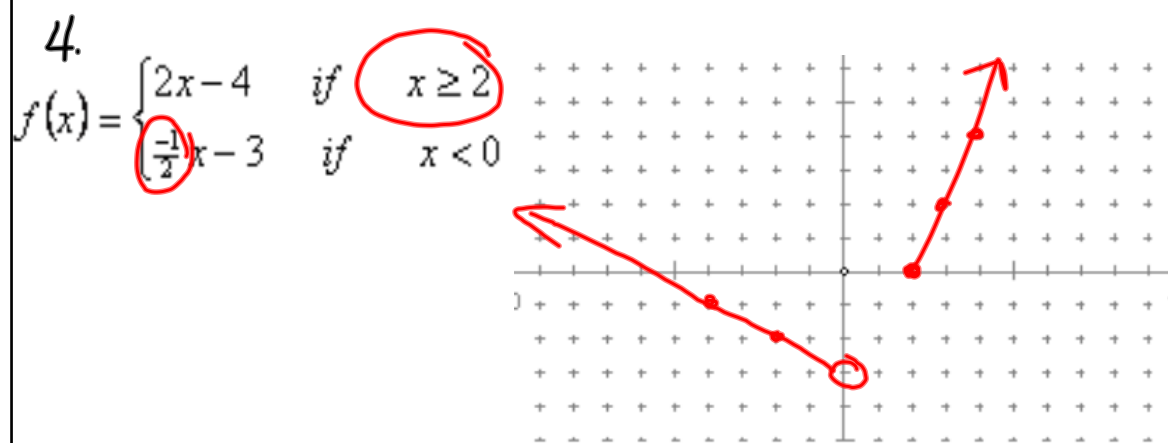
Range:

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Domain: $x < 0 \text{ OR } x \geq 2$

Range: $f(x) > -3$

Oct 9-10:59 AM

HW

p.94

22-24, 26-29, 38-42

Oct 9-11:03 AM